

### REMARKS

Applicants have replace the phrase “removing step” recited in claim 15 with “fractional distillation” to promote clarity. Support for the new phrase can be found in claim 11. No new matter has been introduced by the above amendment. **The proposed amendment should be entered as it raises no new issues that will require further consideration or search and also do not touch the merits of the application within the meaning of 37 C.F.R. § 1.116(b).**

Upon entry of the above amendment, claims 1-4 and 6-19 will be pending and under examination. Reconsideration of the application, as amended, is respectfully requested in view of the remarks below.

#### Rejection under 35 U.S.C. § 102(b)

Claims 11-19 are rejected as being anticipated by Ruider et al., U.S. Patent 6,323,371 (“Ruider”). See the Office Action, page 2, lines 14-15.

Applicants discuss independent claim 11 first. Amended claim 11 covers a process for refining a trialkanolamine from a mixed alkanolamine obtained by reacting an alkylene oxide with ammonia. The process includes, among others, distilling the resultant trialkanolamine using a distillation column without a filler.

The Examiner asserts that “such a distillation column must be considered a reaction vessel, or part of a reaction vessel, and case law is clear on this point: The mere selection of [a] reaction vessel cannot impart patentability; there can be no invention even though the results are better.” See the Office Action, page 3, lines 2-5. The Examiner clearly errs.

Applicants concede that a distillation column without a filler is a reaction vessel, but would like to point out that it is not a reaction vessel disclosed or suggested in Ruider. Ruider discloses distilling crude triethanolamine in the presence of a phosphorus acid or hypophosphorus acid or compounds thereof. See, e.g., the Abstract and the passage at column 5, line 52 to column 6, line 9. Applicants would like to point out that although distillation needs a reaction vessel (such as a distillation column), a distillation column without a filler, an **element** recited in claim 11, is not disclosed in Ruider. In other words, using a distillation column without a filler cannot be “mere selection of [a] reaction vessel” in view of Ruider.

It is well established that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference” (emphasis added). MPEP § 2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In other words, a claim is not anticipated by a cited reference if the reference does not teach each and every element set forth in the claim. Since Ruider does not teach each of every element set forth in amended claim 11, it does not anticipate this claim. As claims 12-19 depend from claim 11, Ruider also does not anticipate these claims.

To complete the record, Applicants would like to point out that, contrary to the Examiner's assertion, they did not argue in the response filed on April 21, 2006 that claims 11-19 were not anticipated by Ruider because “the results are better.” See the April 21, 2006 response, page 8. Rather, Applicants presented an unexpected advantage of the process of claim 1 to support their position that claim 1 is not obvious over another reference cited by the Examiner. See the April 21, 2006 response, pages 9-10.

#### Rejection under 35 U.S.C. § 103(a)

Claims 1-4 and 6-10 are rejected as being obvious over Cocuzza, U.S. Patent 3,849,262 (“Cocuzza”). See the Office Action, page 3, lines 14-15.

Applicants discuss independent claim 1 first. Amended claim 1 covers a process for producing a trialkanolamine having an APHA value of not more than 40. The process includes, among others, (1) producing a mixed alkanolamine; (2) removing unreacted ammonia, water, a monoalkanolamine, and a dialkanolamine from the mixed alkanolamine to obtain a mixture deprived of low-boiling substances; (3) removing a high-boiling substance by subjecting the mixture deprived of the low-boiling substances to vacuum distillation to obtain a distillate; and (4) redistilling the distillate obtained by a vacuum distillation using a distillation column without a filler to obtain a trialkanolamine. In other words, the process of amended claim 1 requires that, after removing low-boiling substances (e.g., a dialkanolamine), a crude trialkanolamine thus obtained is first vacuum-distilled to remove a high-point substance (i.e., step (3)) and then redistilled using a distillation column without a filler (i.e., step (4)).

To support his obviousness rejection, the Examiner again asserts that “such a distillation column must be considered a reaction vessel, or part of a reaction vessel, and case law is clear on this point: The mere selection of reaction vessel cannot impart patentability; there can be no invention even though the results are better.” See the Office Action, page 3, line 20 to page 4, line 3. The Examiner errs again. Applicants would like to point out that “[t]o establish *prima facie* obviousness of a claimed invention, **all the claim limitations** must taught or suggested by the prior art” (emphasis added). MPEP § 2143.04, citing *In re Royka*, 490 F.2d 981, 180 USPQ2d 580 (CCPA 1974). As pointed out in the April 21, 2006 response, Cocuzza does not teach or suggest that, after removing dialkanolamine, a crude trialkanolamine is distilled to remove a high-boiling substance, i.e., step (3) recited in amended claim 1, nor does it teach or suggest, after removing the high-boiling substance, redistilling the crude trialkanolamine using a distillation column without a filler, i.e., step (4) recited in amended claim 1. Since Cocuzza does not teach or suggest **all the limitations** required by amended claim 1, it does not render this claim obvious. Note that it is common knowledge that it is preferable to distill a substance in a distillation column with a filler since such a process is expected to result in a product with higher purity. Indeed, Cocuzza describes distillation columns 1 and 3 containing 10-20 and 15 plates (i.e., fillers), respectively. See, e.g., column 3, lines 6-7 and column 4, lines 34-35. Thus, in view of Cocuzza and common knowledge, one skilled in the art would not have motivated to distill the crude trialkanolamine using a column without a filler, as required by step (4) recited in amended claim 1.

Further, the Examiner clearly errs in asserting that “there can be no invention even though the results are better.” Applicants would like to point out that “[e]vidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed [invention] shares with the prior art, can rebut *prima facie* obviousness.” MPEP 716.02(a)II. As pointed out in the April 21, 2006 response, the instant application shows that distillation of a crude trialkanolamine using a column without a filler results in a trialkanolamine having far better color quality (i.e., a property shared with the prior art process) than that of the trialkanolamine obtained from a distillation using a column with a filler. See the April 21, 2006 response, page 10. Given this unexpected advantage, claim 1 is clearly not obvious over Cocuzza.

Applicant : Fumiaki Morishita et al.  
Serial No. : 10/770,297  
Filed : February 2, 2004  
Page : 9 of 9

Attorney's Docket No.: 08917-094001 / F 04-004-US

Since claims 2-4 and 6-10 depend from claim 1, they are also not obvious over Cocuzza for the same reasons set forth above.

### CONCLUSION

Applicants submit that the grounds for rejection asserted by the Examiner have been overcome, and that claims 1-4 and 6-19, as pending, define subject matter that is novel, and nonobvious. On this basis, it is submitted that all pending claims are now in condition for allowance, an action of which is requested.

Please apply any other charges to deposit account 06-1050, referencing Attorney's Docket No.: 08917-094001.

Respectfully submitted,

Date: 9-6-06

Y. Rocky Tsao  
Y. Rocky Tsao, Ph.D., J.D.  
Attorney for Applicants  
Reg. No. 34,053

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110  
Telephone: (617) 542-5070  
Facsimile: (617) 542-8906